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Pillar Point Harbor Water Quality Update

SAN MATEO
RESOURCE
CONSERVATION
DISTRICT

SAN MATEO COUNTY HARBOR DISTRICT BOARD OF COMMISSIONERS MEETING

APRIL 15, 2020

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- Bacterial Pollution in the Harbor
  - 303:(d) list → TMDL
  - Our current understanding of pollution in the harbor
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  - First Flush
  - HD Considerations for Bacterial Reduction
- Proposal for Next 3 years

About the RCD

- Formed in 1939 in partnership w/ USDA
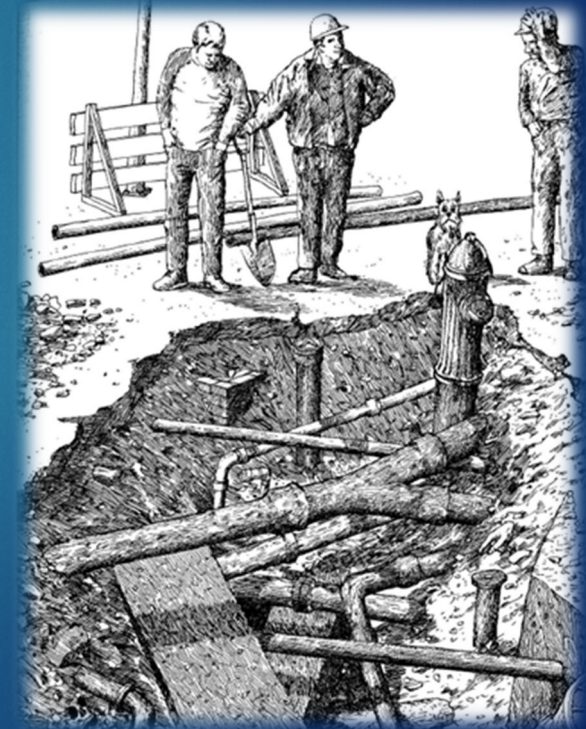
- Non-regulatory

Water

Climate

Wildlife

Agriculture

Fire Resilience and Forest Health

Background

- Regulatory Compliance
  - 303(d) list
  - Total Maximum Daily Load (TMDL)

- RCD/HD Partnership Since 2008
  - Source Identification Study (SID) (Date)
  - Source Stressor Identification Study (SSID) (2019)
  - Cooperative Agreements (FY13-16 & FY16-19)

RCD/Harbor District Partnership

- ▶ Investigating Bacterial Pollution
- ▶ Monitoring Other Pollutants
- ▶ Education & Outreach
- ▶ Stormwater Infrastructure Improvements
- ▶ Technical Assistance

TMDL: Total Maximum Daily Load

- TMDL for PPH and Venice Beach
- Open Comment Period for CEQA (California Environmental Quality Act) Review process
- What will it mean?
  - Regional Water Quality Control Board determines Water Quality Objectives for FIB in PPH, Venice Beach
  - Responsible parties required to reduce FIB
  - Board will consider existing efforts and results

Watersheds Are Dynamic

sewer

storm
drain

dry soil

to creek

Poison the Sea, Poison Me
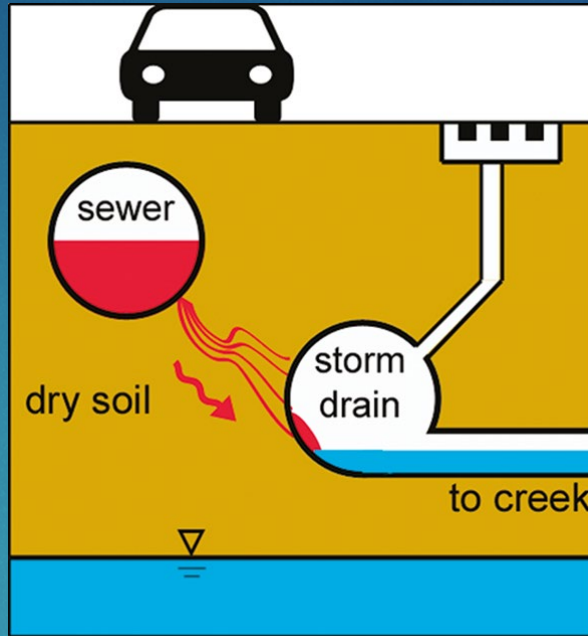
Bacteria in the Harbor
Our current Understanding

1. Bacteria from watersheds, not harbor
2. Need to focus on upland sources, stormwater outfalls (MS4s), harbor Infrastructure
3. Dye tests did not find problems in the sewer lines on HD property
4. Sources of bacteria in MS4 are "uncontrollable" wildlife and secondary sources such as biofilms and sediment
5. FOG in infrastructure, and groundwater infiltration are areas for onsite improvement
6. Canine (could be pets and wildlife) & bovine (could be cattle and wildlife) bacteria present
7. Human bacteria rarely found

SSID Study (2019)

- Addressed discharges from Stormwater Runoff

- Follows up on SID Study and focuses on identifying spatial and seasonal info about FIB sources from the MS4

- Looked at Human and Dog MST (found little from MS4s)

- "A **dearth of human and dog markers detected** in this SSID study (particularly during the dry season) suggests that **FIB conveyed by the MS4 may not be controllable.** Instead, the **sources of FIB within and conveyed by the MS4 appear to be primaily uncontrollable wildlife** (i.e., raccoons, deer, rodents) that are present in the MS4 and contributing areas. **Regrowth of FIB in biofilms within the MS4, and subsequent shearing off of these materials is another likely source of FIB to receiving waters**" (SSID, 2019)

- FOG in infrastructure, and groundwater infiltration are areas for onsite improvement

Potential for Hotspots:
Where is the Pollution Coming From?
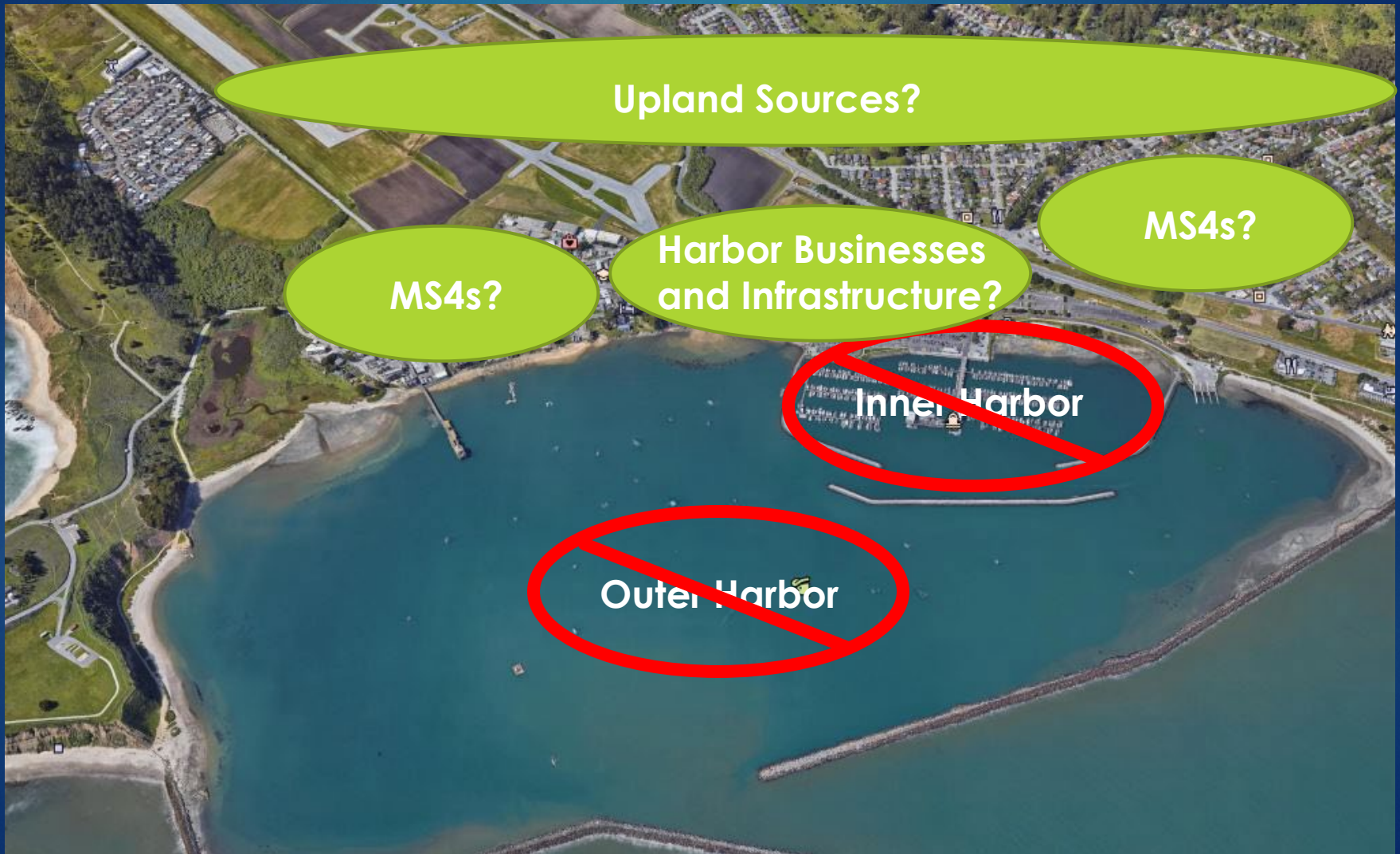
Harbor District Property Considerations

- Dumping, washing, and sweeping into storm drains

- Remnant, corroding, and broken storm lines

- Sediment in stormwater system

- Wildlife: Birds, rodents, racoons

- Pet waste

- Dumpster management and litter

- Fish cleaning station?

- Sewer lines

- General stormwater runoff

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Past 3 years (2017 – 2019) Key Accomplishments

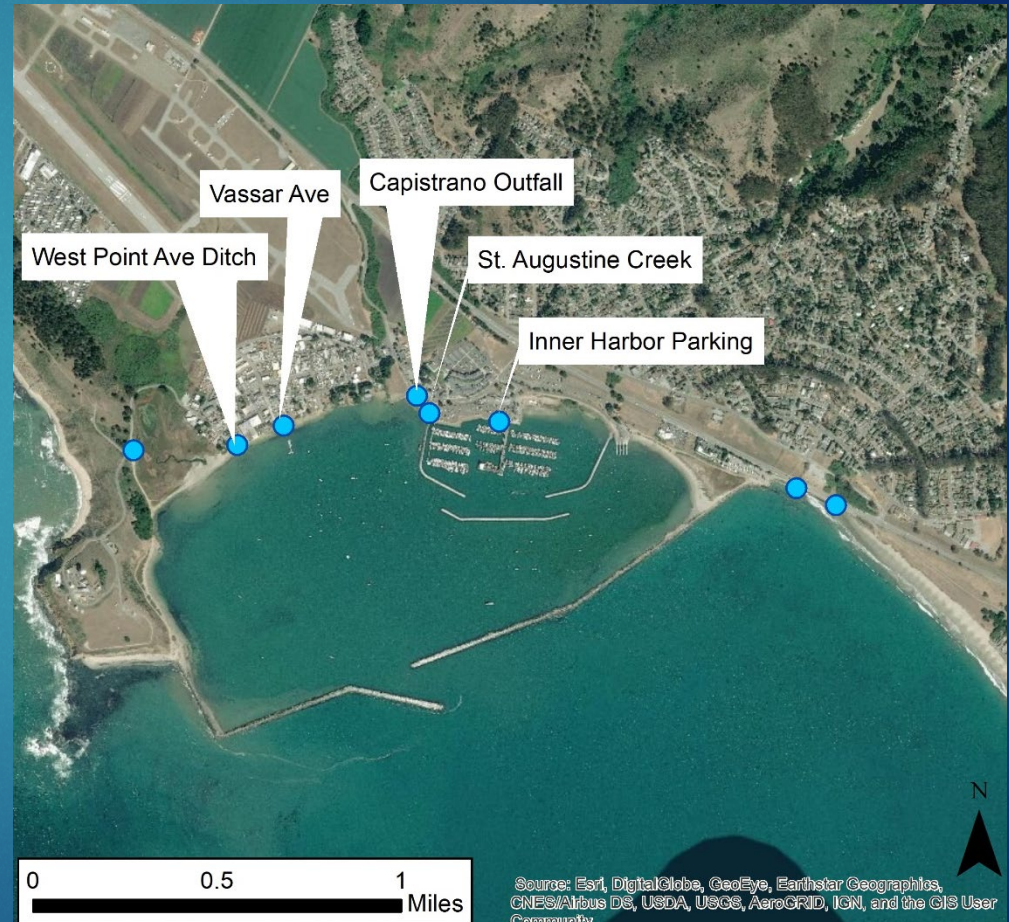- Mapped, cleaned, inspected HD stormwater system
- Enhanced community engagement & citizen science
  - WQ Committee, Coastside 1 Water, First Flush, Snapshot Day, social media, presentations
- Replaced two broken stormwater pipes
- Pet waste stations, signage, mailers, pump station, storm drain stickers, catch basins
- Identified key pollutants, hot spots, and sources
- **Installed manhole cover for pipe access (St. Augustine)**
- **County will seal pipe contributing dry season flow to Capistrano this summer**
- **Collected multi-year data set for analysis**
- **Leveraged other investments**

First Flush Program:
Continued monitoring of Upland Sources

- Included the harbor since 2016

- Stormwater outfalls and drainages to the ocean from Montara to Half Moon Bay

- Bacteria, metals, nutrients, and physical parameters.

- 13 sites samples in 2019 (5 that discharge to PPH)

- Tour

West Point Ave Ditch

Vassar Ave

Capistrano Outfall

St. Augustine Creek

Inner Harbor Parking

0   0.5   1   Miles

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

First Flush: What did we test for?

Pollutant	Potential Sources	Effects
Fecal Indicator Bacteria (E. Coli, Enterococcus	Feces of warm blooded animals (humans, dogs, horses, etc.)	Indicator for pathogens that can harm human health
Nutrients (Nitrate and Orthophosphate)	Fertilizers, pesticides, detergents	Ecosystem and recreation impacts
Metals (Copper, Zinc, Lead)	Gutters/roofs, brake pads, tires, industrial waste, paint, fires	Human health impacts, reduced reproduction and mortality of marine organisms
Total Suspended Solids	Construction, erosion, agricultural runoff, fires	Marine organism impacts (ex: respiratory effects in aquatic organisms)

First Flush 2019: All Sites Pollutant Results Summary

Pollutant	WQO Exceedance Rate	Location with Highest Concentration
Bacteria (E. Coli)	85%	St. Augustine Outfall
Nitrate	8%	Capistrano Outfall
Orthophosphate	85%	Capistrano Outfall
TSS	0%	Arroyo De En Medio Creek (Road Drainage)
Copper	38%	Arroyo De En Medio Creek (Road Drainage)
Zinc	15%	Capistrano Outfall
Lead	0%	Capistrano Outfall

Next 3 years

▶ Clean FOG from St. Augustine storm line

  ▶ Pre- and Post-assessments

▶ Advance additional solutions

▶ Assess other potential pollution sources on HD property

▶ Comprehensive data analysis and integration

▶ Engage with TMDL

▶ Citizen Science and Education/Outreach

▶ On call technical assistance

RCD/HD New Agreement

- FY16-19 cooperative agreement
  - $256,370
  - Extended through January 2020
- Proposed new agreement
  - $300,000
  - Remaining FY20-FY23

Questions?　　　　Thank you!

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